IN THE CLAIMS:

The following is a complete listing of the pending claims.

1. (Currently amended) A composition comprising a fluorophore compound, the fluorophore compound comprising a fluorophore group and a fluorescence quenching leaving group, wherein said fluorescence quenching leaving group is a dabsyl group, a dimapdabsyl group, an azobenzene-sulfonyl group, an amino benzenesulfonyl group, a dialkylamino benzenesulfonyl group, a p-dimethylaniline-sulfonyl leaving group, a tetramethyl-phenylenediamine-sulfonyl leaving group, a nitro benzenesulfonyl group, a dinitrobenzene-sulfonyl leaving group, a fluoro benzenesulfonyl group, a cyano benzenesulfonyl group, an arenesulfonyl group, an arylazo-substituted dabsyl group, or a gold particle conjugated to a sulfonyl group, wherein said fluorescence quenching leaving group contains a sulfur atom bonded to three oxygen atoms and a carbon chain.

2-4. (Cancelled)

5. (Original) The composition of claim 1, wherein the fluorophore compound is an organic compound, an organometallic compound, a nucleic acid, a peptide, a protein, a lipid, or a carbohydrate.

6. (Original) The composition of claim 1, wherein the fluorophore compound is a nucleic acid.

7. (Original) The composition of claim 6, wherein the nucleic acid is single stranded.

8. (Original) The composition of claim 6, wherein the nucleic acid is double stranded.

9. (Original) The composition of claim 6, wherein the quenching leaving group is attached to the 5' hydroxyl group of the nucleic acid.

10. (Original) The composition of claim 6, wherein the quenching leaving group is attached to a hydroxyl group other than the 5' hydroxyl group of the nucleic acid.

11. (Original) The composition of claim 6, wherein the fluorophore group is located 1, 2, or 3 nucleotides away from the quenching leaving group.

12. (Original) The composition of claim 1, wherein the fluorophore compound further comprises a nucleophilic group.

13. (Original) The composition of claim 12, wherein the nucleophilic group is a phosphorothioate or a phosphoroselenoate.

14. (Original) The composition of claim 1, wherein the fluorophore group is fluorescein, TAMRA, Cy3, Cy5, Cy5.5, BODIPY fluorophores, ROX, JOE, or Oregon Green.

15. (Cancelled)

16. (Withdrawn) The composition of claim 1, wherein the fluorophore compound is a peptide or a protein.

17. (Withdrawn-currently amended) A method of detecting intramolecular chemical ligation, the method comprising:

providing a composition in accordance with claim 12;

maintaining the composition under conditions suitable for intramolecular chemical ligation without added enzymes; and

determining the fluorescence of the composition.

18. (Withdrawn-currently amended) The method of claim 17, further comprising determining the fluorescence of the composition before the maintaining step, wherein detection of an increase in fluorescence compared to the fluorescence before the maintaining step indicates intramolecular chemical ligation.

19. (Withdrawn) The method of claim 17, wherein the intramolecular chemical ligation occurs at a greater rate in the presence of an analyte than in the absence of an analyte.

20. (Withdrawn) The method of claim 17, wherein the determining step comprises visual detection, detection with a fluorescence microscope, detection with a fluorescence spectrometer, detection with a flow cytometer, or detection with a fluorescence microplate reader.

21. (Withdrawn-currently amended) A method of detecting intermolecular chemical ligation, the method comprising:

providing a first composition in accordance with claim 1;

providing a second composition comprising a nucleophile compound, wherein the nucleophile compound comprises a nucleophilic group;

combining the first composition and the second composition to form a reaction mixture without added enzymes; and

determining the fluorescence of the reaction mixture.

22. (Withdrawn-currently amended) The method of claim 21, further comprising determining the fluorescence of the first composition before the combining step, wherein detection of an increase in fluorescence compared to the fluorescence before the combining step indicates intermolecular chemical ligation.

23. (Withdrawn-previously presented) The method of claim 21, wherein intermolecular chemical ligation occurs between the fluorophore compound and the nucleophile compound at a greater rate in the presence of an analyte than in the absence of an analyte.

24. (Withdrawn) The method of claim 21, wherein the determining step comprises visual detection, detection with a fluorescence microscope, detection with a fluorescence

spectrometer, detection with a flow cytometer, or detection with a fluorescence microplate reader.

25. (Withdrawn-currently amended) A method of detecting a nucleic acid sequence of interest, the method comprising:

providing a nucleic acid molecule suspected of comprising a nucleic sequence of interest;

providing a first nucleic acid probe that hybridizes to at least a portion of the nucleic acid sequence of interest;

providing a second nucleic acid probe that hybridizes to at least a portion of the nucleic acid sequence of interest adjacent to the first nucleic acid probe;

combining the nucleic acid molecule, the first nucleic acid probe, and the second nucleic acid probe to form a mixture;

maintaining the mixture under conditions suitable for hybridization of the first nucleic acid probe and the second nucleic acid probe to the nucleic acid molecule without added enzymes; and

determining the fluorescence of the mixture; wherein:

the first nucleic acid probe is a composition in accordance with claim 1;

the second nucleic acid probe comprises a nucleophilic group; and

when the first nucleic acid probe and the second nucleic acid probe hybridize to the nucleic acid molecule, the nucleophilic group displaces the fluorescence quenching leaving group.

26. (Withdrawn) The method of claim 25, wherein the fluorescence quenching leaving group is covalently attached to the 5' end of the first nucleic acid probe, and the

nucleophilic group is covalently attached to the 3' end of the second nucleic acid probe.

27. (Withdrawn) The method of claim 25, wherein the fluorescence quenching leaving group is covalently attached to the 3' end of the first nucleic acid probe, and the nucleophilic group is covalently attached to the 5' end of the second nucleic acid probe.

28. (Cancelled)

29. (Withdrawn) The method of claim 25, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe one nucleotide away from the fluorophore group.

30. (Withdrawn) The method of claim 25, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe two nucleotides away from the fluorophore group.

31. (Withdrawn) The method of claim 25, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe three nucleotides away from the fluorophore group.

32. (Withdrawn) The method of claim 25, wherein the nucleic acid molecule is DNA.

33. (Withdrawn) The method of claim 25, wherein the first nucleic acid probe is DNA.

34. (Withdrawn) The method of claim 25, wherein the second nucleic acid probe is DNA.

35. (Withdrawn) The method of claim 25, wherein the nucleic acid molecule is RNA, 2'-O-methyl-RNA, phosphorothioate DNA, locked nucleic acid ("LNA"), or PNA.

36. (Withdrawn) The method of claim 25, wherein the first nucleic acid probe is RNA, 2'-O-methyl-RNA, phosphorothioate DNA, locked nucleic acid ("LNA"), or PNA.

37. (Withdrawn) The method of claim 25, wherein the second nucleic acid probe is RNA, 2'-O-methyl-RNA, phosphorothioate DNA, locked nucleic acid ("LNA"), or PNA.

38. (Withdrawn-currently amended) The method of claim 25, further comprising the step of determining the fluorescence of the mixture prior to the maintaining step, wherein detection of an increase in fluorescence compared to the fluorescence prior to the maintaining step indicates presence of said nucleic acid sequence of interest.

39. (Withdrawn) The method of claim 25, wherein the determining step comprises visual detection, detection with a fluorescence microscope, detection with a fluorescence spectrometer, detection with a flow cytometer, or detection with a fluorescence microplate reader.

40. (Original) A kit for the detection of a nucleic acid sequence of interest, the kit comprising:

a first nucleic acid probe that hybridizes to at least a portion of the nucleic acid sequence of interest; and

a second nucleic acid probe that hybridizes to at least a portion of the nucleic acid sequence of interest adjacent to the first nucleic acid probe; wherein:

the first nucleic acid probe comprises fluorophore group and a fluorescence quenching leaving group;

the second nucleic acid probe comprises a nucleophilic group; and

when the first nucleic acid probe and the second nucleic acid probe hybridize to a nucleic acid molecule comprising the nucleic acid sequence of interest, the nucleophilic group can displace the fluorescence quenching leaving group.

41. (Original) The kit of claim 40, wherein the fluorescence quenching leaving group is covalently attached to the 5' end of the first nucleic acid probe, and the nucleophilic group is covalently attached to the 3' end of the second nucleic acid probe.

42. (Original) The kit of claim 40, wherein the fluorescence quenching leaving group is covalently attached to the 3' end of the first nucleic acid probe, and the nucleophilic group is covalently attached to the 5' end of the second nucleic acid probe.

43. (Original) The kit of claim 40, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe one nucleotide away from the fluorophore group.

44. (Original) The kit of claim 40, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe two nucleotides away from the fluorophore group.

45. (Original) The kit of claim 40, wherein the fluorescence quenching leaving group is covalently attached to the first nucleic acid probe three nucleotides away from the fluorophore group.

46. (Original) The kit of claim 40, wherein the first nucleic acid probe is DNA.

47. (Original) The kit of claim 40, wherein the second nucleic acid probe is DNA.

48. (Original) The kit of claim 40, wherein the first nucleic acid probe is RNA, 2'-O-methyl-RNA, phosphorothioate DNA, locked nucleic acid ("LNA"), or PNA.

49. (Original) The kit of claim 40, wherein the second nucleic acid probe is RNA, 2'-O-methyl-RNA, phosphorothioate DNA, locked nucleic acid ("LNA"), or PNA.

50. (Previously presented) The composition of claim 1, wherein said fluorescence quenching leaving group is a dabsyl group.

51. (New) A probe pair comprising a first and second probe, wherein said first probe comprises a fluorophore group and a fluorescence quenching leaving group, said fluorescence quenching leaving group containing a sulfur atom bonded to three oxygen atoms and a carbon chain, and selected from the group consisting of a dabsyl group, a dimapdabsyl group, an azobenzene-sulfonyl group, an amino benzenesulfonyl group, a dialkylamino benzenesulfonyl group, a p-dimethylaniline-sulfonyl leaving group, a tetramethyl-phenylenediamine-sulfonyl leaving group, a nitro benzenesulfonyl group, a dinitrobenzene-sulfonyl leaving group, a fluoro benzenesulfonyl group, a cyano benzenesulfonyl group, an arenesulfonyl group, an arylazo-substituted dabsyl group, and a gold particle conjugated to a sulfonyl group, wherein said second probe comprises a nucleophilic group.

52. (New) The probe pair of claim 51, wherein said first probe is a dabsyl-substituted electrophile probe, and said second probe is a probe containing a nucleophilic phosphorothioate group.